

Prelim. Amend. PCT/EP00/00194

IN THE CLAIMS:

1. (Amended) An injection device comprising
a container (80) for reception of a cartridge (52) which contains an injection fluid (53) and on whose proximal end an injection needle (76) can be mounted,
a barrel (50, 48, 46, 36) in which said container (80) is displaceable between a proximal end position and a distal end position,
a plunger (108), arranged in the barrel and serving to expel injection fluid (53) out of the cartridge (52), which plunger during an injection is guided in a guide member (124) axially displaceably but nonrotatably relative to the barrel, and which has an external thread (159) that is guided in an internal thread (152) of a setting member (151) serving to set the injection dose, and
a frictionally engaging coupling (162, 250), in the manner of a slip coupling, between the container (80) and the plunger (108), for transferring at least a portion of an axial movement of the plunger (108) to the container (80).
2. (Amended) The injection device according to claim 1, wherein the setting member (151) has associated with it a spring (172) for biasing the setting member (151) in the proximal direction, and the setting member (151) is displaceable against the force of said spring (172) into a distal position (FIG. 3) and is releasably latchable there.
3. (Amended) The injection device according to claim 2, wherein
the setting member (151) is displaceable from the proximal end of the barrel into a distal position (FIG. 3) and is releasably latchable there.

4. (Retyped) The injection device according to claim 3, wherein

for cocking the spring (172), a cocking member (56) is provided which can be joined, from the proximal end of the injection device (30), to a thread (60) of the injection device, in order to displace the container (80), using a distal end region of the cocking member (56), in the proximal direction.

5. (Amended) The injection device according to claim 1, wherein

the setting member (151) is, in at least one distal position (FIG. 2), rotatable relative to the barrel of the injection device in order to make possible an axial displacement of the plunger (108) relative to the barrel for the purpose of setting an injection dose (Y).

6. (Amended) An injection device comprising
a container (80) for reception of a cartridge (52) which contains an injection fluid (53) and on whose proximal end an injection needle (76) can be mounted,

a barrel (50, 48, 46, 36) in which said container (80) is displaceable between a proximal end position and a distal end position,

a plunger (108), arranged in the barrel and serving to expel injection fluid out of the cartridge (52), which is guided in a guide member (124) axially displaceably but nonrotatably relative to the guide member, and which has an external thread (159) that is guided in an internal thread (152) of a setting member (151),

a cocking spring (172) biasing the setting member (151) in the proximal direction and, during an injection operation, causes displacement thereof into a proximal end position, and against the force of which the setting member (151) can be displaced into a distal end position and releasably latched there,

a first coupling arrangement (K4), for nonrotatable but axially displaceable coupling of the setting member (151) to the barrel, which is deactivated in the distal end position of the setting member (151),

and a second coupling arrangement (K5), for nonrotatable but axially displaceable coupling of the guide member (124) to the barrel, which is activated in the entire region between the distal and proximal end positions of the guide member (124).

7. (Retyped) The injection device according to claim 6, comprising

a connection (282), provided between guide member (124) and setting member (151), that joins said parts to one another rotatably but substantially axially nondisplaceably.

8. (Amended) The injection device according to claim 6, wherein

both the guide member (124) and the setting member (151) have external splines (274 and 222, respectively), and said external spline sets have associated therewith internal splines (134) in the barrel (36), into which said external spline sets (222, 274) can engage, individually or together, by means of a longitudinal displacement of guide member (124) and setting member (151) occurring relative to the barrel (36).

9. (Retyped) The injection device according to claim 8, wherein

the setting member (151) is equipped with a latching member (64), by means of which the setting member (151) can be releasably latched in a predefined axial position relative to the barrel (36) in which its external splines (222) are not in engagement with the internal splines (134) in the barrel (36).

02 10.(Amended) The injection device according to claim 8, wherein the setting member is equipped with a latching member (64), by means of which the guide member (124) can be releasably latched in a predefined axial position relative to the barrel (36) in which its external splines (274) are in engagement with the internal splines (134) in the barrel (36).

11.(Amended) The injection device according to claim 9, wherein the setting member (151) is rotatable relative to the latching member (64) provided on it.

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36. (Amended) An injection device comprising
a barrel (50, 48, 46, 36),
a plunger (108), arranged in said barrel and serving to
expel injection fluid out of a container (52) containing an
injection fluid,
which plunger is guided in a guide member (124) axially
displaceably but nonrotatably relative to the guide member,
and which has an external thread (159) that is guided in an
internal thread (152) of a setting member (151),
a cocking spring (172) which biases the setting member (151)
in the proximal direction,
a latch (38, 64), provided between barrel and setting member
(151), for releasably latching the setting member (124) in a
distal position (FIG. 23) in which the cocking spring (172) is
cocked,
the cocking spring (172), after disengagement of the latch
(38, 64), displacing the setting member (151) a defined distance
(FIG. 25: L) out of said distal position (FIG. 23) into a
proximal end position (FIG. 25),
external splines (222), provided on the setting member
(151), for longitudinal guidance of the setting member (151) in
barrel-mounted internal splines (134) substantially complementary
to said splines (222), and
external splines (274), provided on the guide member (124),
for longitudinal guidance of the guide member (124) in the
barrel-mounted internal splines (134).

37. The injection device according to claim 36, wherein
the length of the barrel-mounted internal splines (134)
corresponds at least to the aforesaid predefined distance (L).

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44. (Amended) An injection device comprising
a container (80) for reception of a cartridge (52) which
contains an injection fluid (53) and on whose proximal end an
injection needle (76) can be mounted,

a barrel (50, 48, 46, 36) in which said container (80) is
displaceable between a proximal end position and a distal
position,

a plunger (108), arranged in the barrel and serving to expel
injection fluid (53) out of the cartridge (52), which plunger
during an injection is guided in a guide member (124) axially
displaceably but nonrotatably relative to the barrel, and which
has an external thread (159) that is guided in an internal thread
(152) of a setting member (151) serving to set the injection
dose,

and an apparatus for modifying an axial spacing (Y) in the
region between the setting member (151) and the container (80)
for purposes of dose setting.

45. (Amended) The injection device according to claim 44,
wherein during an injection, the axial spacing (Y) increased upon
dose setting is reduced to zero.

46. (Amended) An injection device comprising
a container (80) for reception of a cartridge (52) which
contains an injection fluid (53) and on whose proximal end an
injection needle (76) can be mounted,

a plunger (108), arranged in the barrel and serving to expel
injection fluid (53) out of the cartridge (52), which plunger has
an external thread (159) that is guided in an internal thread
(152) of a setting member (151) serving to set the injection
dose, and which is guided axially displaceably in a guide member
(124),

a drive connection (232, 234, 266, 268, 270, 272) which is
provided between the guide member (124) and the container (80)
and which comprises an apparatus (118, 242; 232, 234) that
limits, in at least one rotation direction, the torque
transferable from the container (80) to the guide member (124).

47. The injection device according to claim 46, wherein
the apparatus for limiting the torque comprises a slip coupling
(232, 234).

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51. (Amended) An injection device comprising
a barrel (36, 46, 48) wherein a dose-setting apparatus (FIG.
15), for setting a fluid quantity to be injected, is arranged
displaceably between a distal end position (FIG. 3) and a
proximal end position (FIG. 25),

said dose-setting apparatus having associated therewith a
setting member (32) for dose setting, and the dose-setting
apparatus being, at least in its proximal end position (FIG. 25),
out of engagement with said setting member (32).

52. (Amended) An injection device according to claim 51, wherein a dose-setting apparatus (FIG. 15), for setting a fluid quantity to be injected, is arranged displaceably between a distal end position (FIG. 3) and a proximal end position (FIG. 25),

AR said dose-setting apparatus having associated with it a setting member (32) for dose setting, and the dose-setting apparatus (FIG. 15) being, at least in its distal end position (FIG. 3), out of engagement with said setting member (32).

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68. (Amended) An injection device comprising an indicating apparatus for the injection dose that is set, in a generally cylindrical automatic injection device, comprising a scale (69') having, in a first row (71), a first series of indicating digits and, in a second row (73), a second series of indicating digits, and a double magnifier (42), serving to indicate the dose, of which a first lens (70) is associated with the first row (71), and a second lens (72) is associated with the second row (73), of indicating digits.

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71. (Amended) An injection device comprising
a housing (50, 48, 46, 36) with a container (80), arranged
in said housing, for reception of a cartridge (52) which contains
an injection fluid (53) and on whose proximal end an injection
needle (76) can be mounted,

a plunger (108), arranged in the housing and serving to
expel injection fluid out of the cartridge (52), which is guided
in a guide member (124) axially displaceably but nonrotatably
relative to the guide member,

and which has an external thread (159) that is guided in an
internal thread (152) of a setting member (151) provided for dose
setting,

a first coupling arrangement (K4) for nonrotatable but
axially displaceable coupling of the setting member (151) to the
housing, said coupling arrangement (K4) being deactivated during
dose setting,

a second coupling arrangement (K5) for nonrotatable but
axially displaceable coupling of the guide member (124) to the
housing,

and an apparatus (50) for activating the first coupling
arrangement (K4) and for disabling the second coupling
arrangement (K5), in order to make the guide member (124)
rotatable relative to the housing and the setting member (151)
nonrotatable relative to the housing, and to make possible an
axial movement of the plunger (108) by rotation of the guide
member (124).

72. (Amended) The injection device according to claim 71,
wherein there is provided, between guide member (124) and setting
member (151), a connection (278, 282) that joins said two parts
to one another rotatably but substantially axially
nondisplaceably.

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105. (Amended) An injection device comprising
a container (80) for reception of a cartridge (52)
which contains an injection fluid (53) said cartridge having a
proximal end adapted for mounting thereon of
an injection needle (76),

a housing (50, 48, 46, 36) in which said container (80) is
displaceable between a proximal and a distal position,

a plunger (108), arranged in the housing and serving to
expel injection fluid (53) out of the cartridge (52), which has
an external thread (159),

a setting member (151) having an internal thread (152)
adapted to engage said external thread (159) of said plunger,
said setting member serving to set the injection dose,

and said setting member being guided axially displaceably in
a guide member (124), and

a drive connection (232, 234, 266, 268, 270, 272)
which is provided between the guide member (124) and the
container (80) and which comprises an apparatus (118, 242; 232,
234) that limits, in at least one rotation direction, a torque
transferable from the container (80) to the guide member (124),

in order to make possible, by the transfer of a limited
torque from the container (80) to the guide member (124) after a
cartridge replacement, a displacement of the plunger (108) in the
proximal direction into contact against a piston (106) provided
in the cartridge (52).

106. (Retyped) The injection device according to claim 105,
wherein the apparatus for limiting the torque comprises a slip
coupling (232, 234).

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